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THE SEARCH FOR EVIDENCE OF MOKELE-MBEMBE IN THE PEOPLE'S REPUBLIC OF THE CONGO

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INTRODUCTION

Between late October and early December, 1981, we conducted an expedition to explore an area in the 60,000-square-mile Likouala swamps of the People's Republic of the Congo. The purpose of the expedition was twofold: first, to investigate the possible existence of large, unknown animals which the natives call Mokele-Mbembe, and believed by some to morphologically resemble Mesozoic sauropods; second, to learn more about the general ecological conditions existing in the area, particularly the vegetation and fauna. Non-probative evidence of Mokele-Mbembe was found. Soils, plants, animals, and archaeological artifacts were collected.

Reports of large, unknown animals in Central Africa can be found in historical literature dating back over 200 years. The first report appeared in a 1776 book by Abbe Lievain Bonaventure Proyard (*Histoire de Loango, Kakongo, et Autres Royaumes D'Afrique, Rédigée d'après les Mémoires des Préfets Apostoliques de la Mission Française*), which stated:

The Missionaries, while passing through a forest, observed the track of an animal which they did not see but which must have been monstrous: The marks of the claws were noted on the ground, and these formed a print about thirty-six inches in circumference.

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In the late 19th century, Alfred Aloysius Smith (Trader Horn) encountered numerous reports of such large, unknown animals in the swamps of Gabon. The natives referred to them as the Jago-Nini. Smith himself had previously found large, unidentified, three-clawed footprints of an animal the natives called Amali, and he associated these tracks with the Jago-Nini. Carl Hagenbeck, a well-known German animal collector, revealed in 1912 that he had received two independent reports of similar animals in the swamps of Rhodesia, one from one of his own employees, the other from a British big-game hunter.

The following year, Captain Freiherr von Stein zu Lausnitz led a German expedition down the Sangha River in the Likouala district of what is now the People's Republic of the Congo. (At the time, the area formed part of the German colony of the Cameroons, which Captain von Stein had been commissioned to explore.) His expedition, cut short by World War I, encountered similar native reports of an animal named Mokele-Mbembe (see Willy Ley, *The Lungfish, the Dodo, and the Unicorn: An Excursion into Romantic Zoology*, Viking Press, New York, 1948). His report remained unpublished for several decades. In it, he stated:

The animal is said to be of a brownish-gray color, with a smooth skin, the size approximately that of an elephant, at least that of a hippopotamus. It is said to have a long and very flexible neck and only one tooth . . . a few spoke of a long muscular tail like that of an alligator [sic]. Canoes coming near it are said to be doomed; the animal is said to attack vessels at once and to kill the crews, but without eating the bodies . . . It is said to climb the shore even in daytime in search of food; its diet is . . . entirely vegetable. The preferred plant was shown to me. It is a kind of liana, with large white blossoms, a milky sap, and applelike fruits. At the Ssambo River I was shown a path said to have been made by this animal in order to get at its food. The path was fresh and there were plants of the described type nearby.

Twenty-four years later, in 1938, Leo von Boxberger, a former German colonial magistrate, explored the Cameroons and encountered similar reports about a "water beast" at the confluence of the Mbam and Sangha rivers, and at the Ntem River. As often happens in these areas, all his notes were lost when his party was attacked by the Pangwe tribesmen of Spanish Guinea.

In 1976, James Powell, an American studying crocodiles at the Ogooue and N'gounie rivers in Gabon, obtained descriptions of a strange animal named N'yamala, similar, he thought, to Trader Horn's Amali. Following consultations with Bernard Heuvelmans in France and Roy P. Mackal in the U.S., Powell returned in 1979 and obtained more first-hand reports. Following an ecological and ethnographic study of Central Africa, Mackal concluded that, if such animals existed, they would probably be concentrated to the east of Gabon, in the unexplored swamps between the Sangha and Ubangi rivers of the northern Congo Republic (Fig. 1). Thus, a new expedition was mounted by Mackal and Powell in early 1980, which took them

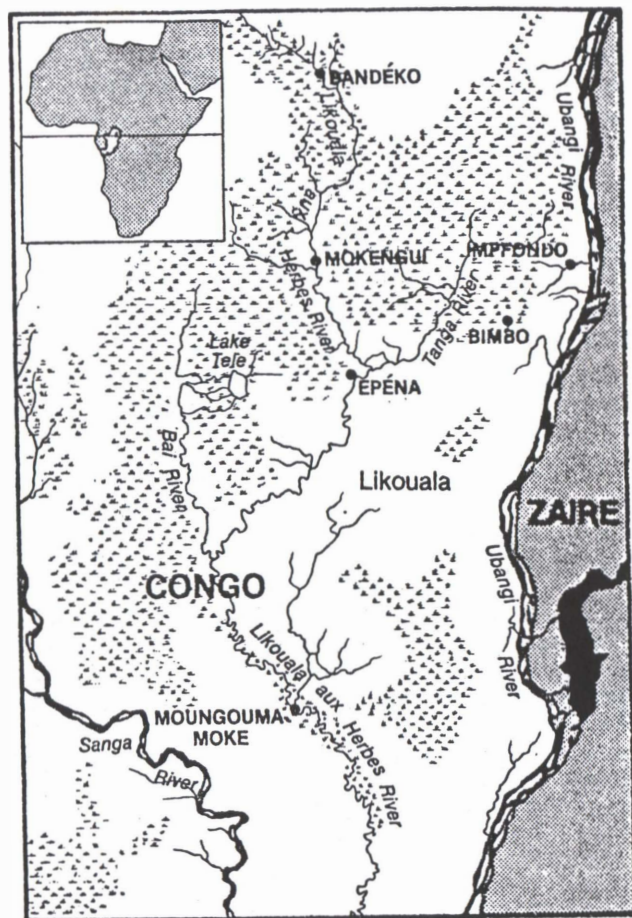


FIG. 1.—The swamps between the Ubangi and Sangha rivers in the Likouala region of the People's Republic of the Congo. The area is just north of the Equator.

to Impfondo, a jungle town on the Ubangi River (which separates the Congo from the Old Belgian Congo, now known as Zaire) just north of the Equator. This area is characterized by thick rain forest and swamp forest, extremely low population density (< 1 person per km^2), and a difficulty in penetration or navigation due to the total lack of roads or other forms of transportation. As predicted, Mackal and Powell found that Mokele-Mbembe was, in fact, reported by the Likouala natives. The party reached Epena, on the Likouala River, before returning to the United States.

Mackal planned a more comprehensive expedition in 1981 to reach the Bai River and, if possible, Lake Telle, where reports indicated a possible

killing and butchering of one of the animals in the late 1950's. No reports were known of non-Africans navigating the Bai River north to what was then thought to be the Tebeke River (so named by the pygmies of Minganga).

The result was the 1981 expedition discussed in this report.

NARRATIVE DESCRIPTION

The expedition members from the U.S. were Roy P. Mackal, J. Richard Greenwell, M. Justin Wilkinson, and Marie T. Womack. Eugene Thomas, American Baptist missionary at Impfondo, served as guide and French and Lingala interpreter.

Initial work was conducted in Brazzaville with numerous agencies and ministries. Following much discussion and planning, appropriate security, photographic, and collecting permits were obtained. An agreement was drawn up with the Director General, Ministry of Water and Forests, and a Congolese biologist was assigned to the expedition, as were two armed security personnel and a Congolese Army radio operator. Technical and logistical support was provided by the Institute of Geography, the National University, the United Nations Office, the French Office for Overseas Scientific and Technical Research (ORSTOM), and the U.S. Embassy.

The expedition departed by air to the jungle town of Impfondo, 500 miles north of Brazzaville, located on the Ubangi River (a major tributary of the Congo), which serves as a border with Zaire. Impfondo is on the edge of the Likouala swamps (Fig. 1).

Three pygmy helpers were hired in Impfondo, and the expedition departed in two dugouts up the Ubangi, through the Djemba Canal, down the Tanga River, to the junction with the Likouala River, and to the town of Epena, where the last government outpost is located. Navigation through the "canal" was difficult due to overgrown vegetation and submerged tree trunks. Following two days at Epena, the expedition proceeded further down the Likouala to the villages of Djeke and Edzama. At the confluence of the Likouala-Bai rivers, it proved almost impossible to locate the route up the unexplored Bai due to extensive distribution of "floating prairie," making motorized navigation impossible and paddling difficult (Fig. 2). One and a half days of strenuous efforts brought the expedition to the village of Kinami, where a base camp was established (Fig. 3).

Forest and savanna forays were made from Kinami, numerous biological collections were made, and sonar work was conducted up the Bai River, beyond the village of Mounkouma Bai. Visits were made to various locations where some villagers claimed Mokele-Mbembe could be found, particularly in "deep holes" in the river. While these areas were, in fact, very deep (30 to 50 feet, as compared to an average river depth of 20 feet), no unidentified animals were observed or tracked on sonar. Fish, fish schools, and crocodiles



FIG. 2.—Expedition members attempting to locate the route up the unexplored Bai River at the confluence of the Likouala and Bai rivers.

were easily located by sonar. Conflicting versions of knowledge of Mokele-Mbembe were obtained at Mougouma Bai. The village chief indicated little knowledge of the subject, and exhibited a reluctance to discuss it. Congolese members of the expedition, however, were informed by villagers that such knowledge was known to them, but that they would not divulge it (i.e., exact areas where Mokele-Mbembe might be readily seen) to white outsiders, particularly Americans.

The planned continuation up the Bai to the Tebeke River and across to Lake Telle was canceled. The northern Bai was not the river the Kabonga Pygmies at Minganga refer to as the Tebeke, as had been thought. The Tebeke, in which the pygmies claim Mokele-Mbembe is found, is further to the west, and could not be reached without a long overland march from the Bai, impossible with large dugouts. Such a venture would require a new expedition coming down from Minganga to the north. The swamps between the Bai and Lake Telle, about 10 miles, were, according to the villagers at Kinami, totally impassable. The only way to reach the lake is by foot, on a hazardous and exhausting four-day march through swamp-forest, from the village of Boa on the Likouala. With gasoline getting low, time running out, and general exhaustion, the expedition leader (Mackal) decided to abandon further efforts to reach Lake Telle.



FIG. 3.—Expedition members setting up a base camp for biological collections. From left to right: Mackal (sitting), Wilkinson, Thomas, and Greenwell.

Of particular interest during the expedition was the observation of faunal species along the route that was taken. Fish, reptiles, amphibians, birds, and mammals were observed. Fish were represented in great quantity in the river systems, and appeared to serve as a substantial protein source for the human population. No attempts at identification or classification were made. Reptiles were best represented by snakes, which are usually immediately killed by the local population when encountered. Because of high reproduction rates, however, there is little danger of species depletion. Many snakes were observed, even close to human habitation. Lizards were plentiful, and some crocodiles were tracked by underwater sonar. Amphibians were not observed in large quantities, probably because of their elusive nature.

Many birds were observed, but they were represented by only a few families. Kingfishers, herons, geese, hawks, and eagles were plentiful. Eagles were perhaps less common, and might possibly be declining in numbers due to human predation. It was noted that, in general, bird species were less plentiful in the Congo Basin than in the Amazon Basin of South America, but that is probably due to already-understood ecological causes.

Mammals, for which eastern and southern Africa have become famous, were not observed in great quantities. The principal species observed were monkeys, which the population harvests for food in substantial quantities.



FIG. 4.—Expedition members attempting to navigate the 20-mile Djemba "canal" between the Tanga and Ubangi rivers.

It appeared that monkey colonies in the environs of villages have been totally decimated, and that longer and longer forays into the forest to reach such monkey colonies are necessary. The depletion of monkey species worldwide has been of growing concern to many governments, and the depletions of the Congo appear to represent the early stages of eventual primate species depletions. Fortunately, the vastness and isolation of the Likouala region still offers considerable sanctuary for both monkeys and apes.

It is of interest that primatologists and primate textbooks do not acknowledge the western lowland gorilla (*Gorilla gorilla gorilla*) as being found in the area. In the Congo, it is believed to be restricted to the area west of the Sangha River. We found, however, that it is well distributed throughout the Likouala all the way to Zaire, and perhaps even further east, although no primatologist has ever entered the Likouala, at least in the past 30 years. Many gorilla reports were obtained from natives, as well as physical evidence. Chimpanzees (*Pan troglodytes troglodytes*) are also well distributed throughout the Likouala.

The expedition's return to Impfondo followed the same route: south on the Bai to the Likouala, and northeast to Edzama, Djeke, Epena, up the Tanga River, and back through the canal to the Ubangi River and Impfondo. Return passage through the canal, during which many species of

snakes were observed, proved to be extremely difficult. The water level had dropped about 1 1/2 feet since our entry into the swamps due to the termination of the rainy season, resulting in a continuous series of underwater "jams" on large, submerged tree trunks. A continuous 18 hours of punting by all expedition members (Fig. 4), combined with 6 hours of nighttime, in-water exertion by one expedition member, ultimately resulted in a successful passage of the 20-mile waterway.

Infections among village populations along the route followed were widespread. Drug treatments were often conducted in the mornings. Various infections were acquired by expedition members, which were brought under control. The conditions under which the expedition members worked could be categorized as strenuous. Day-by-day operations were physically and psychologically taxing.

Various biological collections were made (plants, insects, reptiles, birds, and mammals), which have been deposited with ORSTOM, the U.S. National Museum of Natural History, and the University of Arizona.

An archaeological site was also uncovered at Impfondo, and excavation produced more than 30 artifacts (pottery sherds). These were donated to the National University in Brazzaville. Various experiments in cognitive mapping were also conducted with pygmy subjects.

RESULTS

Attempts to gain further information on Mokele-Mbembe were made through standard psychological and ethnographic techniques with villagers, surveillance, inspection of ground or vegetation disturbances, use of sonar equipment, and an informal evaluation of nutritional resources available for large herbivores. Various anecdotal reports were obtained from villagers. Surveillance produced one interesting result. Inspection of ground or vegetation disturbances produced additional results. Sonar tracks failed to produce supportive evidence. An informal nutritional evaluation indicates that the local resources are sufficient to support unknown populations of large, mobile herbivores.

Surveillance

After completing a curve in the Likouala River (north of Epena), a large wake (approximately 5 inches high) was observed originating from the east bank; under the circumstances, such a wake could only be caused by the sudden submersion of a large animate object. Crocodiles do not leave such wakes, and elephants and other large mammals cannot submerge, with the exception of the hippopotamus. Our understanding was (and is) that hippos do not exist in the Likouala swamps, and villagers on the Likouala never see them (they are found in the Ubangi, on the edge of the Likouala swamps).

The wake is therefore cataloged as having been made by a large, unknown animal.

Disturbances

An elephant hunter at Djeke took us to a trail he had found many months before, which he believed could not have been made by an elephant. The trail left a small lagoon, traversed 100 meters of forest, and crossed about 1 kilometer of marsh to the Likouala River (Fig. 5). No subsequent "exit" trail from the river (typical of elephants) was found, indicating the animal remained in the river (not typical of elephants). In the immediate vicinity of the lagoon, large indentations were observed, and broken branches were visible, to a considerable height. Some lay on the ground. These were old and rotting, not recently snapped by the hunter for our benefit. It should be noted, however, that the trail across the marsh and into the river was not observed by us; the tall grass had presumably straightened up again in the ensuing months. The trail is cataloged as having been made by a large, unknown animal.

Nutritional and Ecological Considerations

Mokele-Mbembe is said to be a vegetarian. A large amount of vegetation is available in the swamps, and appears to be adequate to support large mobile herbivores. Samples of "molombo" (*Landolphia*), a fruit which the animal supposedly eats, were brought back and are currently being analyzed. The expedition was never able to penetrate the deep swamp away from the rivers for more than a few miles due to the logistical problems involved. There are vast areas, many thousands of square miles, where no humans (not even the natives) live or penetrate, and it is conceivable that unknown populations could remain there, almost undetected, indefinitely.

If the animals are sauropods, their existence would require ecological explanations for persistence since the Mesozoic. The geological characteristics involved are representative of an area which has undergone little change in the form of mountain building or other distinctive geological features. Vegetation communities have also probably remained relatively constant as a result. What has changed since the late Cretaceous is the generalized distribution of vegetation in Africa. Some have attempted to reconstruct these distributions (see D. I. Axelrod and P. M. Raven, Late Cretaceous and Tertiary Vegetation History in Africa, in M. J. A. Werger [ed.], *Biogeography and Ecology of Southern Africa*, Part I, pp. 17-130, Dr. W. Junk, The Hague, 1978). Lowland rain forest was in a relatively more northerly latitude in the late Cretaceous, but it has remained generally unchanged, although reduced, in Central Africa since then. It appears, therefore, that there are no serious ecological factors that would entirely rule out a Cenozoic persistence of some animals in Central Africa.



FIG. 5.—Small lagoon near the village of Djeke, from which a large animal trail crossed a marsh to the Likouala River.

One line of evidence often cited by paleontologists is the termination of dinosaur fossil records at the Cretaceous-Tertiary boundary. However, such evidence originates from other areas. All dinosaur fossil sites in Africa, for example, are located in north, east, and south Africa. No dinosaur fossil sites exist in central Africa, probably because paleontologists have avoided working in an area where there are few institutions to work through, transportation and communications are very poor, and field recovery conditions in swamps are extremely difficult. One could therefore reasonably argue that the dinosaur fossil record from other areas is not applicable to central Africa, and that one can only discuss Cretaceous dinosaur extinctions in central Africa once a fossil record has been established there.

The Likouala Region represents one of the last, almost untouched, natural biopreserves in existence. With an area of about 60,000 square miles, and a swamp-forest making most forms of transportation impossible, it serves as a refuge for many known species of animals, and probably a number of undescribed species as well.

Nevertheless, depletion of large animals is occurring. Forest elephant (*Loxodonta africana cyclotis*) is being increasingly hunted in the Likouala. Unless the Congolese government ensures some kind of protective program for the elephant (either through enforcement or incentives, or both) the present rate of elephant killing will continue, and it could conceivably cease

to be a Congolese animal within the foreseeable future. The world trade in ivory is the principal cause of the killing. As the biological turnover of elephants is unfortunately very low, the immediate economic benefit of ivory harvesting overwhelms the long-term benefits to the Congo of maintaining normally reproducing elephant communities. Absolutely no elephant conservation or protective measures were observed in the Congo, either on the part of the government or international bodies or societies.

Gorillas and chimpanzees appear to be plentiful in the Likouala, but they are killed whenever encountered. Apes also have a very low reproductive rate due to prolonged gestation and maturation, and the human danger to these species is a threat which cannot be ignored.

As to other unknown animals surviving in the Likouala, there is still only anecdotal evidence. Our expedition found no compelling evidence that Mokele-Mbembe exists, but we think that the historical and anecdotal evidence that does exist is sufficient to warrant further investigation.

FUTURE PLANS

Expedition members have discussed possible future penetrations of the Likouala swamps, particularly as reports of other large animals were also obtained, the descriptions of which cannot be reconciled with known animals of contemporary zoology.

Several target areas have been identified. One would be Lake Telle (the operating area of another recent U.S. expedition), and the swamps immediately surrounding the lake. Another would be the Tebeke River, northwest of Lake Telle, but requiring a totally different route (north on the Likouala, and an overland march to Minganga). Another would be much further south: an on-foot exploration of the swamps between the Likouala and the Ubangi. However, no definite plans have yet been formulated for another expedition.

Any future expeditions should be carefully planned, and should be conducted within the framework of scientific collecting enterprises, in order to further our understanding of the Likouala region as a whole.